

### REMARKS

Reconsideration of the application is requested.

Claims 1 and 4-16 are now in the application. Claims 1 and 4-16 are subject to examination. Claims 1, 10, 11, 15, and 16 have been amended. Claims 17-44 and 46-66 have now been canceled to facilitate prosecution of the instant application. Claims 2, 3, and 45 had been previously canceled.

Limitations that were previously in claim 11 have been added to claims 1, 15, and 16. It is believed that no new issue requiring further search or consideration has been presented and entry of the amendment after the final rejection is requested. This is discussed further below with regard to the rejection over the prior art.

Under the heading "Claim Rejections – 35 USC § 112" on page 2 of the above-identified Office Action, claims 1, 15, 16 and 44 have been rejected as being indefinite under 35 U.S.C. § 112, second paragraph.

More specifically, the Examiner has stated that it is unclear how subtracting the first signal from the second signal cancels the changes of the chamber over time. The Examiner has also stated that there is no support for the limitation.

Applicants appreciate the indication of the error. The limitation, “while canceling out influences on the first signal and on the second signal due to changes in the chamber that occur over time” has been deleted from the claims.

It is accordingly believed that the claims meet the requirements of 35 U.S.C. § 112, second paragraph. The above-noted changes to the claims are provided solely for clarification or cosmetic reasons. The changes are neither provided for overcoming the prior art nor do they narrow the scope of the claim for any reason related to the statutory requirements for a patent.

Under the heading “Claim Rejections – 35 USC § 103” on page 3 of the above-identified Office Action, claims 1, 4-16, 44 and 45 have been rejected as being obvious over International Publication No. WO 01/59737 A1 to Cole in view of U.S. Patent No. 7,075,445 B2 to Booth et al. under 35 U.S.C. § 103.

Applicants respectfully traverse with regard to claims 11 and 14.

Limitations that were previously in claim 11 have been added to claims 1, 15, and 16. It is believed that no new issue requiring further search or consideration has been presented and entry of the amendment is requested.

Claim 1 includes a step of illuminating the sample in the chamber with a first wavelength of substantially horizontally and/or vertically polarized light.

Claim 15 includes first illumination means for illuminating the sample in the chamber with a first wavelength of substantially horizontally and/or vertically polarized light.

Claim 16 includes processor means adapted to operate in accordance with a predetermined instruction set, said apparatus, in conjunction with said instruction set, being adapted to perform the method comprising the steps of: illuminating the sample in the chamber with a first wavelength of substantially horizontally and/or vertically polarized light.

International Publication No. WO 01/59737 A1 does not teach illuminating a sample in a chamber with a first wavelength of substantially horizontally and/or vertically polarized light.

Page 7, lines 3-5 of International Publication No. WO 01/59737 A1 only teach that the light could be polarized. There is no teaching relating to a specific polarization angle or more specifically to substantially horizontally and/or vertically polarized light.

Booth et al. was cited to teach a limitation that is now canceled from the claims. Booth et al. do not teach illuminating a sample in a chamber with a first wavelength of substantially horizontally and/or vertically polarized light.

The claimed way of subtracting response signals obtained from different illuminating wavelengths of light in combination with vertically and/or horizontally polarizing at least one of the illuminating wavelengths of light provides an optimal solution to the problem, which has existed for more than thirty years, of maximizing the distinction between smoke and dust.

Applicants believe it is clear that the cited prior art does not teach or suggest the invention as now defined by claim 1, 15, or 16.

Under the heading "Claim Rejections – 35 USC § 103" on page 9 of the above-identified Office Action, claim 53 has been rejected as being obvious over International Publication No. WO 01/59737 A1 to Cole under 35 U.S.C. § 103.

Claim 53 has been canceled.

It is accordingly believed to be clear that none of the references, whether taken alone or in any combination, either show or suggest the features of claims 1, 15, or 16. Claims 1, 15, and 16 are, therefore, believed to be patentable over the art. The dependent claims are believed to be patentable as well because they all are ultimately dependent on claim 1.

In view of the foregoing, reconsideration and allowance of claims 1 and 4-16 are solicited.

In the event the Examiner should still find any of the claims to be unpatentable, counsel would appreciate receiving a telephone call so that, if possible, patentable language can be worked out.

Please charge any fees that might be due with respect to Sections 1.16 and 1.17 to the Deposit Account of Lerner Greenberg Stermer LLP, No. 12-1099.

Respectfully submitted,

/Mark P. Weichselbaum/  
Mark P. Weichselbaum  
(Reg. No. 43,248)

MPW:cgm

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Lerner Greenberg Stermer LLP  
P.O. Box 2480  
Hollywood, Florida 33022-2480  
Tel.: (954) 925-1100  
Fax: (954) 925-1101